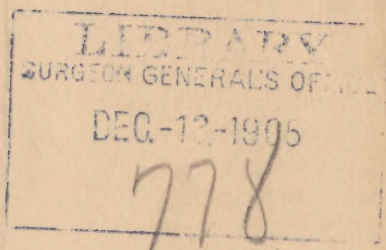


EDGAR (J.C.)



OBSTETRIC TEACHING.*

By JAMES CLIFTON EDGAR, M.D.,

New York.

IN accepting the most kind invitation of Dr. Osler, on behalf of the Medical and Chirurgical Faculty of Maryland, to address your honored body upon an obstetric subject today, I desire to express my deep appreciation of the honor you have conferred upon one, who can but feel how ill-fitted he is to do full justice to such an important branch of medicine and surgery as obstetrics.

In Dr. Osler's note of invitation, obstetrics is termed "that much-neglected subject, and this expression offers me the key-note to what I desire to say.

In this address an attempt will be made to set forth some of the experiences of a decade's work in the almost daily teaching of (1) theoretical and (2) practical obstetrics.

I.—THEORETICAL INSTRUCTION.

The natural, and, as experience has taught us, the best sequence for the student to follow, is for him to acquire a well-grounded knowledge of theoretical obstetrics, before he applies himself to the clinical part of the subject.

Much experience and observation has convinced us that the more thorough the theoretical groundwork of the student, the better and safer man he makes at the bedside when he finally

* Read, by invitation, at the Centennial Meeting of the Medical and Chirurgical Faculty of the State of Maryland, Baltimore, April 27, 1899.

comes to his practical work, and his intelligent appreciation of the phenomena which he then observes, permits him to store up much valuable information for future use. We frequently hear the boast of students, after their practical course in obstetrics, that they have attended eight or even a dozen women in confinement, and yet the recorded histories of these patients, written by such students, often show that the phenomena of the several stages of labor are hopelessly confused, one common error being to date the end of the first stage of labor and the beginning of the second from the moment the membranes rupture. We believe it advisable to defer the taking up of the general subject of obstetrics until the pupil has had at least one year's instruction in the medical school, especially in physiology and anatomy. Without this preliminary study, the student cannot profitably or comfortably digest instruction in the elements of the physiology and pathology of the puerperium, delivery and pregnancy. He must be familiar with the characters of the various tissues, of the hard and soft parts concerned, to which constant reference is made in his recitation year, in terms of microscopic and histological anatomy.

Whatever may be the place of topographical anatomy in courses of anatomy *per se*, its consideration should come early, at the very beginning of obstetric teaching. It is in a high degree necessary that the pupil shall have mastered, by the time he enters upon his obstetric training, not only the size, shape, and consistency of the normal lower abdominal and pelvic organs, but the relations in space which such organs as the labia, clitoris, meatus urinarius, and hymen, together with their glands, blood-vessels, and nerves; the uterus and vagina, kidneys, ureters, bladder, and urethra; the sigmoid flexure, rectum, and anus; abdominal aorta, ovarian, external and internal iliac, and uterine arteries; ovaries, Fallopian tubes, and ligaments of the uterus; pelvic muscles, peritonæum, glandular, vascular and nerve supply, sustain to one another. If, in addition, the student has mastered the principles of histology, then, and only then, can he be considered fully equipped to receive elementary instruction from the department of obstetrics, and the head of this department is then free, as he should be, to direct his whole energies to the work which he has been appointed to undertake. After this, the pupil's work should

be so systematized as to blend progressively with the work of his remaining three years in the medical school, and render him, at the end of that time, not only capable of answering the few simple questions found today upon the final, or State examination paper, but fully competent, as well, to care intelligently for women in normal labor, and at least to recognize, if not meet, the ordinary complications of the lying-in state, labor, and pregnancy.

Theoretical obstetrics is today being very generally taught by (1) Recitations, (2) Theoretical Lectures, illustrative in character, and (3) Laboratory Work, (4) Manikin Instruction.

1. *Recitations.*—We know of no better method for the student to enter upon his theoretical instruction than the recitation system.

The profit to the student will be doubled, if, during his recitation course, he can first attend an occasional obstetric clinic, and secondly, if the instructor takes pains to thoroughly illustrate the subject of each recitation.

It is not sufficient that the pupil be required to learn and recite in a perfunctory manner the principles and laws of obstetric science, as set forth in some good text-book, in bi-weekly or tri-weekly recitations, but these principles and laws must be brought home and rendered real and interesting to him by abundant illustration.

We have in another place* described how the recitation may be made more interesting and profitable by means of models, wet and dry preparations, etc., etc.

2. *Theoretical Lectures, Illustrative in Character.*—The underlying principles of obstetrics are based upon certain recognized and well-known laws of anatomy, physiology, and physics, which allow of a wide range of illustration.

Without a question, the best single method for the student to acquire a practical and lasting knowledge of midwifery, is in the personal and actual care of parturient and puerperal women. No student, however, should be allowed this privilege, without previous training, and in witnessing various obstetrical procedures in a clinic; but, unless his mind has been made familiar with the main principles of the subject, or his attention is fixed at the time, by means of abundant illus-

* Obstetric Teaching, *N. Y. Med. Jour.*, November, December, 1896.

tration, especially regarding the anatomical and mechanical principles involved, much of his practical experience goes for nothing, and is wasted upon him. The shortcomings of the theoretical or didactic obstetric lecture have in the past few years received considerable attention, but most of those who have arraigned the didactic form of instruction in the strongest terms, have offered us no substitute other than a general plea for more practical work.

I believe a modified theoretical lecture still has its place in obstetric teaching, namely, a didactic lecture that is in part recitation, in part demonstration, and which is freely and abundantly illustrated by various means, some of which I have suggested in another paper.*

Not a decade ago the memory was the only faculty appealed to and cultivated in the teaching of obstetrics. The student's mind was made the recipient of isolated facts, and required to retain them by brute force, as it were. That memory has its place and is an important factor, we make no question, but it is the power to observe, to grasp, to comprehend, to utilize, to put two and two together and reach a logical conclusion—that is the fundamental principle of practical education.

A good deal has recently been written regarding the passing of the theoretical or didactic lecture, and the fact that it is less generally made use of than heretofore has already been alluded to. I cannot but believe, however, that, so far as obstetrics is concerned, the theoretical lecture; in a modified form, still has its place and can accomplish much good.

I do not refer to the old-fashioned lecture of fifty-five minutes, devoted to rehearsing the course of a disease, interspersed with anecdote and clinical experience of the speaker, but we have reference to a lecture—theoretical in part, to be sure, but partly recitation and partly demonstration—which deals with the pathological conditions of more advanced obstetrics, and covers such subjects as abortion and premature labor, extra-uterine gestation, the mechanics and physics of labor, ruptures of the genital tract, puerperal infection, and the rarer forms of pelvic deformity.

Fifteen minutes at the commencement of such a lecture can, to advantage, be given to recitation upon the subject of

* Obstetric Teaching, *N. Y. Med. Jour.*, November, December, 1896

the preceding lecture, and pathological specimens, models, the blackboard, and the lantern and screen are not to be neglected as means of demonstration and illustration.

3. *Laboratory Work.*—Laboratory work in the department of obstetrics is not generally included in the course given at medical schools. Williams, of Johns Hopkins, has for some years been doing pioneer work in this direction, and others are following his example.

The object of such an addition to the course in obstetrics is to give the medical student a more intelligent grasp of the minute structures of the organs of generation, which may complicate pregnancy, labor and the puerperal condition, than he would obtain in his first and second year courses upon general histology and pathology.

In such a laboratory course, "in addition to the normal anatomy, he will have precise and accurate information upon ordinary diseases of the placenta, and will be able to diagnose fetal syphilis by the examination of the placenta and the fetal bones."

4. *Manikin Instruction.*—As far as the demonstration and manikin work goes, bi or tri-weekly meetings, for a period of six to eight weeks, will pretty thoroughly cover the ground.

It is well for the instructor to aim not only at a systematic course in manikin work, but also at the same time a review of the theoretical work gone over in the second year, giving it as far as possible, a practical application. This, with a little attention, can be readily accomplished.

Such manikin work should call for more apparatus, models, and specimens, than was required in the recitations of the preceding year. An abundance of blackboard space is required as before; pelves entire and in sagittal and transverse sections must be constantly at hand; three or four good manikins with a supply of puppets, fetal cadavers preserved in formaline or alcohol, embryos, fetuses, placentæ with their membranes, in different stages of development, and carefully selected models for use alone, and in conjunction with the manikins.

The models may be of plaster, or *papier maché* reproductions of plaster and clay, copper-plated models, or composition, or of a miscellaneous character. With them can be shown the

parturient canal with its curves, the mechanism of cervical dilation in primiparæ and multiparæ, the size and shape of the uterus at the several months of gestation, the degrees of uterine, vaginal and perineal ruptures, and methods for the repair of the latter, involution of the puerperal uterus as shown in a series of *papier maché* reproductions of frozen sections, the various forms of pelvic deformity, the action and use of various cervical dilators, the intra-uterine tamponade, the puerperal curette, the ligature in cervical hemorrhage, manual dilatation of the os, and many other obstetric conditions. We must insist, however, upon the recognition of the proper place of these models in obstetric teaching, and sound a caution regarding their use. They should be viewed as auxiliaries, as adjuncts, and as a better preparation for subsequent practical instruction; and care must be used that no false or exaggerated impression is conveyed to the student in their use. In another paper we have described in detail the manner of their production. As in the recitation system, the same general plan of assigning work may be employed, the student, however, being required to take a more active part.

Thus by a generous illustration, and a demonstration form of instruction, much that heretofore has been more or less problematic, may be cleared up, and new interest may be given to many obstetric subjects which, by reason of their obscurity and "dryness," proved stumbling blocks to the student, and later to the practising physician.

This is the time and opportunity given the student to acquire that manual training in obstetric procedures which may never recur until he is in active practice, and he should be made to appreciate his advantages.

It is at this time that he acquires the kind of training which gives to the intending physician the practice to make him intelligent and expert in the use of his knowledge; the kind of training which saves the newly-appointed hospital interne the mortification, in the presence of his seniors, of applying the forceps up-side-down; the kind of training which causes the interne, or newly appointed instructor, ever to remember that there is such a thing as a curve to the parturient canal, or that traction with the forceps applied at the brim, or a leg in high arrest of the breech, in a horizontal plane, quite possibly results in disaster to mother and child.

By means of such training, the physician's first cases of confinement will be saved much that otherwise would be experimental and crude in the manner of treatment. Take, for example, the subject of post-partum hemorrhage. Eight or ten students are assigned to manikins, in which are placed leather models of the puerperal uterus. Gauze, volsella, dressing and needle forceps, needles and ligatures,—all of which are part of the equipment of the department,—are at hand. Each student has the assistance of a second, and under the supervision of the instructor is required to pack the uterus with gauze, and also place a ligature in the apex of the laceration in the neck of the model. The models are then removed from the manikin, and the manner of gauze packing, and the position of the ligature demonstrated and criticised by the instructor. Copper-plated plaster casts of the several degrees of vaginal and perineal lacerations are distributed to the other pupils for inspection and subsequent demonstration. Other students are assigned blackboard space to enumerate the origin of hemorrhage, after delivery, mechanism, and causes and principles of treatment.

II.—CLINICAL INSTRUCTION.

1. *Necessity for Clinical Instruction.*—The great importance, nay, the absolute necessity of clinical instruction in obstetrics, can not be denied. It is not long since two courses of didactic lectures constituted the entire equipment of the recent graduate in medicine, and many a man knows what a defective equipment it was unless supplemented by practical work. It was not just, either to the physician, or the patient, that the former should be obliged to acquire his obstetric knowledge, at the expense of the latter. This is the self-evident and all-sufficient justification of clinical instruction in obstetrics.

2. *Objections to Clinical Instruction.*—There are only two which are worthy of consideration:

1st.—That the presence of students at the bedside is distasteful to the patient.

2d.—That the conduct of labor by inexperienced persons results in an increasing morbidity and mortality rate.

The first objection certainly deserves some consideration, but if gentlemanly and tactful conduct is insisted upon, if the

number of students assigned to a case is strictly limited, and if the patient is kindly assured that skilled medical attention will be at her disposal, instead of the useless and often dangerous attentions of an ignorant midwife, this objection loses much of its force.

The second objection can only hold good by reason of a lapse in the rigid, critical, and constant supervision on the part of the instructors, which should at all times accompany practical instruction.

It is, moreover, answered by the result of many such practical systems established many years ago in Germany, and by those established within the last two decades in this country.

It is again answered by the fact that an intelligent student of the third or fourth year, who has a knowledge of anatomy and physiology, who has had a good theoretical course in midwifery, and who is taught and compelled to observe the principles of asepsis and antisepsis, is a safer adviser for the parturient woman than the average midwife.

3. *Clinical Instruction in this Country During the Past Decade.*—During the past decade there has been a revolution in the teaching of medicine in this country. The two and three year courses are gradually being replaced by four years of instruction; college terms of five, six, or seven months, are being lengthened to eight or nine. The hap-hazard theoretical teaching of the old two-year course, has already been largely supplanted by systematic recitation, and thorough and practical laboratory instruction. The clinics of former years, given before large audiences, have been generally supplemented by practical clinical work by small sections of the class.

Has the subject of Obstetrics kept pace with the other branches of medicine in this reform? There has, without doubt, been a great improvement in the method of obstetric teaching, but as to the question whether this has corresponded to the improvement in other branches of medical teaching, we are compelled to answer in the negative.

The history of medical progress in the past few years certainly points to some reform in the teaching of the art of midwifery, shown in the marked improvements in the matter of instruction in colleges, already possessing lying-in departments, and in the establishment of new institutions, whose

main purpose is the imparting of practical instruction, not only to the undergraduate, but to the physician as well.

In spite of these facts, there appears to be no doubt that the teaching of obstetrics generally throughout the country is at this time anything but what it should be, and that "clinical instruction in midwifery has not kept pace with clinical instruction in the other departments of medicine."

4. *Present Methods of Clinical Instruction.*—We do not consider it necessary at this time to dwell at length upon the details of methods of practical instruction, since already in several large cities of the country, and notably in the city of Baltimore, clinical instruction in obstetrics has already attained a high degree of excellence. Before turning to what we consider the especial needs of the beginner in practical obstetrics, we will only attempt a brief outline of those methods, which in our own experience have proved most useful.

We assume that the student has completed his two years in the medical school, and has acquired such a degree of theoretical knowledge as is necessary to profit by practical work.

1. *The Examination of Pregnancy.*—It is advisable that the first of the student's observations should be in the examination of pregnancy. The first few days of his service should be rather passive ones. He should be called to witness all the deliveries and operations in the wards and the operating room; he should attend such clinical lectures as shall be given; accompany the attending or resident physician on his diurnal rounds, and in addition should spend several hours each day in the out-patient room, or waiting ward, where, under a competent instructor, he shall be required to take an active part in the examination and diagnosis of pregnancy, including pelvimetry, and should, under the supervision of the instructor, be required to fill in and sign his name to the histories of pregnancy. It will be well if the record charts used at this time, and later for confinement cases and the new-born child, be fuller and more detailed in their requirements than perhaps the medical records of a hospital would demand. This is intended to bring out the student's faculties of observation, and a wider consideration of the subject than is generally considered necessary. Examinations thus carried out under the eye of the instructor, with attention to the minute details, as well

as general observations in the examination and care of even a few cases of pregnancy, labor, and new-born children, will prove of far greater advantage to the student than a much greater number cared for by him without direct instruction and supervision.

No better time than this can be selected to inculcate in the student the principles of obstetrical cleanliness, mechanical and chemical.

Rules and explicit directions for personal cleanliness may be printed to advantage, in bold type, and hung in the examining room, as is the custom in some foreign maternities, notably of Prague. Moreover, by this plan, the same rigid cleansing and disinfecting of the hand and forearm is applied to the examination of pregnancy as to that of labor, and to carry it out properly an abundant supply of fresh water, soap, brushes, and mercuric bi-chloride are called for.

With an abundance of material, such examinations of the dispensary and waiting room of the hospital may, after the student has examined several cases under proper supervision, readily be made to resemble the "touch course" of the foreign maternities.

With two students assigned to a case, they may be given time, after cleaning of their hands, under the supervision and according to the rules of the institution, to examine the women, both externally and internally. The instructor in charge then examines the cases, and questions the students regarding the general condition of the patient, the time of gestation, posture and presentation of the fetus, condition of the mammary glands, anterior abdominal walls, external genitals, pelvic contents, size of the bony pelvis, and departure from the normal in hard or soft parts.

2. *Ward Work.*—He may now, with great precaution, be permitted to examine several cases in labor in the wards or delivery room; then, under rigid and expert supervision, he may be allowed to care for the entire confinement. The instructor must stand ready at this time to correct errors in cleanliness, and criticise unskillfulness in management.

Under the supervision of the instructor, as in the examination of pregnancy, the student should be directed in the filling out of a complete history of labor and child, going into

the minutest details in order to train his faculties of observation, and to this his name should be signed, so that he may understand that he personally is held to account for the future welfare of the case.

Should the student remain on "ward" duty, the future care of the case is assigned to him, still under the supervision of the ward instructor, and the daily observations upon mother and child are taken by him and criticised at the diurnal rounds of the attending or resident physician.

3. *Obstetric Clinics.*—With a properly equipped operating room, each normal or abnormal delivery, in the maternity, may be made the occasion for an obstetric clinic, all the students on the premises being summoned for the occasion. For this to be properly carried out, it should be demanded of the resident staff that it shall also be a teaching staff, and that a preliminary history of the case, in each instance, should be concisely stated, as well as a careful exposition of each step of the labor or operative procedure.

Such obstetric clinics could readily be made to resemble the diagnosis classes held abroad, as, for instance, in Munich or Prague, where parturient women are rolled into the amphitheatre from the ward or delivery room, and two students are called down from the seats, required to render their hands and forearms obstetrically clean, in the presence and under the criticism of the instructor, then to examine the case, make their diagnosis of pregnancy, or labor, presentation, condition of os, membranes, vagina, vulva, bladder, rectum, and hard parts, and finally undergo questioning from the instructor regarding their findings in the case. Should operation or interference be called for, it is to be performed by the instructor; but should the case prove a normal one, the student may be permitted to complete the case, always under the criticism and supervision of the instructor, who should be expected to address not only the students at the case, but the entire audience.

Many points of practical interest connected with the management of the second and third stages of labor, the handling of the child, the care of its eyes, the administration of the post-partum douche, the watching of the fundus uteri, the application of an occlusion dressing and abdominal binder, may be

brought home in a most thorough as well as interesting manner.

The further conduct of mother and child may rest with the two students confining the case, and they should be held responsible for subsequent departures from the normal condition.

4. *Outpatient or Dispensary Work.*—The systematic training the student has received in the wards renders it possible for him to put this same training in practice in the care of women in their own homes. Thus, a large class of the poor of great cities, who either can not or will not enter a maternity hospital may be reached. It is no doubt true, so far as this country is concerned, that while a small proportion of the poor, dependent upon charity for proper aid in confinement, is cared for in maternity hospitals, by far the greater number remain at home, and must be attended there. This outdoor polyclinic, or tenement-house service on the part of the student, can only be rendered practical by an elaborate and carefully supervised system; by the most thorough checks against accident, and by an abundant supply of clinical instructors.

Here, again, it can be abundantly proved that such a system is not only feasible, but is capable of being carried on successfully. Regarding the greater advantages to the student of the outdoor maternity system, as compared with the indoor service, there can be no question. In the former, the pupil being thrown upon his own resources and responsibility, becomes no longer a looker-on, an assistant, but being practically in charge of the case of confinement, he profits by his experience accordingly. The limits of the present paper forbid our enlarging further upon the machinery by which such outdoor lying-in services are conducted. Moreover, descriptions of such systems, carried on in Baltimore, Philadelphia, New York and Boston, have been sufficiently dwelt upon during the past ten years.

The Special Needs of the Undergraduate Student.—Appropriate theoretical instruction, demonstrations, manikin, and laboratory work should, as far as possible, precede clinical work.

The question which we will try to answer tonight is: What does the student, the beginner in obstetrics, need to

learn at the bedside? It is not possible or justifiable for the undergraduate student to attempt forceps operations, versions or serious obstetric procedures except after considerable experience in witnessing and assisting at such operations, under competent guidance; nor is it desirable that he occupy himself at first with the study of abnormal cases. And here we come to what we believe to be the essential and important feature of the clinical instruction of students. It can not be too often repeated that the desire of the student to see and study abnormal cases should be restrained until he is thoroughly familiar with the phenomena and natural history of normal labor. It is our conviction that there is too little knowledge of this subject not only among students but practitioners as well. It is not uncommon to meet those seeking instruction in practical obstetrics whose only desire is to see abnormal cases, and yet, who will make the most ludicrous or even fatal mistakes in the diagnosis and treatment of normal labor. It is not necessary to specify instances. They will at once occur to those who have had even a limited experience in obstetric teaching.

It is altogether too common to regard the vaginal examination as the chief and only procedure which is of importance to the student. The pulse, the temperature, the general condition of the patient, and especially abdominal palpation and auscultation, should come first. The student should be taught to auscultate and palpate the pregnant uterus with the same scrupulous care which he is required to observe in the physical examination of the chest in cases of pulmonary or cardiac disease. These results may then be confirmed or supplemented by vaginal examination.

By pursuing this method he will not be obliged at a later date to unlearn most of what he has learned in order to practice modern aseptic midwifery.

When the student has become thoroughly familiar with normal labor he will have no difficulty in recognizing the existence of departures from the normal condition. Just as a thorough knowledge of the mechanism of labor is essential to the proper management of labor, so a thorough familiarity with normal labor should be acquired before one thinks of undertaking the management of abnormal cases, or, indeed, of normal ones.

It should be remembered that at his first examination the

student is totally at a loss. The landmarks are all unfamiliar, the circumstances are trying, and it is not to be wondered at that little information is gained. It is not too much to say that if a graduate physician has had no clinical instruction and is obliged to attend his first cases without assistance, it will be a long time before he can even make a confident diagnosis of presentation and position, even in a normal case. The student should be required to make such a diagnosis in every case and have it confirmed or corrected by the instructor. He should be required to answer correctly such simple questions as the following:

Is the woman in labor? How do you know she is in labor? What is the stage of labor? What is the condition and degree of dilatation of the cervix? Have the membranes ruptured, and, if so, is their rupture premature? What is the position and presentation, and how do you reach your conclusions? Does the presenting part advance with a pain? Is the head well flexed? Is there a caput succedaneum? What is the character of the vaginal secretion? Has the head passed the pelvic brim? Is the head movable or fixed? Is the patient a multipara or primipara, and how do you know? What is the rate and character of the fetal heart sounds, and where are they most plainly heard? These, and other similar questions, which will readily suggest themselves, should be asked, and if the student answers incorrectly, as he often will, his attention should be called to his mistake and an effort should be made to show him how he was led into error, for it is an undoubted fact that all of us teachers and students alike learn more from our mistakes than we learn in any other way; and it is undoubtedly best for us to make our mistakes, if possible, when they will do no harm.

It will be of great advantage to the student if he can repeat his examination under similar guidance after a time, in order to observe the changes incident to the progress of labor.

Students are too apt to be thinking about and too ready to find abnormal conditions. It is a matter of every-day experience in hospitals and in the early days of private practice, that the proportion of serious complications and the number of cases requiring operative interference is in inverse ratio to the experience of the individual. The student should be taught that, in the vast majority of cases he is observing a

normal condition, and should be cautioned, lest in thinking of contracted pelvis or post-partum hemorrhage, he neglect to empty the bladder or bowels, if necessary, or prevent a perineal laceration.

We regard a careful drilling in the external examination of pregnancy and labor as of the highest importance. This can, with advantage, be practiced at the preliminary examination of pregnancy, when the patient is not disturbed by the pains of labor, though its practice during actual labor should not be neglected. The auscultation of the fetal heart, a matter of considerable difficulty to the beginner, can be then leisurely practiced and facility in the diagnosis of presentation and position by external manipulation acquired. This kind of examination, namely: the examination of pregnant women, can be practiced at any time without the elaborate precautions necessary for the prevention of infection, and will be of the greatest value to the student in his future practice. Those who do not begin their clinical work in obstetrics with the systematic practice of the external examination, are not apt to take it up later.

It is too often the case that the student's interest in the process of labor ceases with the birth of the child. The importance to the student of the careful study of the phenomena of the third stage of labor can not be over-estimated. It is experience that many students and even practitioners are not sufficiently familiar with the clinical phenomena of the third stage, and especially with the signs which tell whether or not the placenta is still in utero—a matter of the greatest importance with regard to the proper treatment of the third stage.

It should hardly be necessary to say that manipulations within the passages during the third stage, by the student, or, indeed, by the teacher, under ordinary circumstances are not permissible owing to the increased danger of sepsis.

Nor should the student's interest in the case be allowed to lapse with the completion of labor. The observation of the normal puerperium is of the highest importance, not only because the student has the opportunity by daily external examinations to watch the progress of involution, but also that he may become accustomed to regard the normal puerperium as a non-febrile condition. This latter statement, indeed,

applies to the whole period from the beginning of delivery until the end of the lying-in period. When the student becomes accustomed to the fact that, with proper precautions fever does not occur, he will not in his later practice be a victim of the skepticism with regard to the necessity of aseptic precautions, which, unfortunately, is still so prevalent.

During the entire course of the student's practical instruction, an effort should be made to instill into his mind certain fixed habits of thought and action. The habits of personal cleanliness and rigid asepsis, the habit of measuring the pelvis, of examining the urine, and of making an external examination, in every case, the habit of attending to many details too numerous to mention here, but which in their entirety make up the modern practice of obstetrics; and last, but by no means least, the habit, or the duty, of giving to his poor patients the same care and attention which he gives to the rich. It is much better that he should learn a few important physiological facts thoroughly than that he should have an imperfect or superficial knowledge of many pathological conditions connected with the practice of midwifery.

Further, the student should have constantly held up before him the golden rule of obstetrics, namely, *primum non nocere*. Clinical experience, as well as bacteriology, has taught us in the past semi-decade to look upon ante-partum, intra-partum, and post-partum vaginal manipulations in the same light as that of intra-uterine manipulations of a decade back. The clinician and the teacher are too prone to consider only mortality in their results, and to pass over entirely the question of morbidity. Even today in carefully conducted hospitals the influence upon morbidity, the ultimate consequences of a mild puerperal septic process, are too apt to pass unrecognized by the obstetrician until the case passes into the hands of the gynecologist for the cure of chronic uterine and peri-uterine inflammation, which had its origin in an unnecessary if not careless vaginal examination. We hear much of a lowered mortality and little or nothing of a reduced morbidity. Antiseptic midwifery taught us how to reduce the mortality in childbirth; bacteriology takes up the reform where antiseptics left it, goes a step further, and teaches us how to secure a low morbidity rate. The whole process of labor, properly considered, is a conservative process, whose tendency is to prevent

sepsis; and we should teach our students not to thwart this process or supplant it by the methods of art, but to follow and aid it, only interfering when for one reason or another the resources of nature prove insufficient. Nature's processes in labor are from within outward. The fetus starts on its journey through the parturient canal from the sterile uterine cavity, passes through the aseptic cervix, continues on its way through the sterile vagina, and only at the point of final expulsion comes in contact with a septic surface—at a time when such contact can do no harm. In other words the fetus passes from the clean to the unclean. Moreover, during and after the journey of the fetus through the birth-canal, nature has provided additional safeguards against infection, notably the physiological increase of the germicidal vaginal mucus which attends the normal progress of the first and second stages of labor; the flushing of the canal from within outward by the aseptic saline liquor amnii at the end of the first stage; by a second flushing of the canal by a rush of aseptic saline blood and liquor amnii at the termination of the second stage; and at the termination of the third stage the cleansing process is completed by the outward passage of the placental mass and the subsequent flow of blood. Then follow quickly the reparative processes of nature to close the open blood vessels and lymphatics. While, as we thus see, all nature's processes are from within outward and conservative—from the sterile toward the septic, manipulations on the part of the obstetrician must necessarily be from without inward—from the unclean toward the clean. Hence the importance of teaching non-interference except in the presence of a positive indication.

Bacteriology has taught us that there is much to be learned in a careful study of normal labor, that we have devoted too much of our time in the past to the study of abnormal conditions, and that the keynote to the prophylaxis against many of these very abnormalities is to be found, not in the preaching, but in the general practice of the principles of modern asepsis, namely, non-interference with the conservative and reconstructive processes of nature. Never before have the bacteriological studies of the laboratory been more in harmony with the clinical experience at the bedside, both of them adding to our knowledge of the subject of prophylaxis against puerperal infection. Never before have the principles of asepsis been so

clearly set forth. Bacteriology has shown us not only the uselessness, but even the harm of much of the bewildering technique of the early antiseptic era; has taught us the folly of the too general use of bacteria-destroying chemical solutions; has clearly and definitely pointed out when and where these antiseptics are to be employed and when and where withheld—in a word, the intelligent application of asepsis and antisepsis.

Primum non nocere is a principle not always easy to impress upon the undergraduate student in an active obstetric service. The student in his two or four weeks' course in practical obstetrics may possibly witness many obstetric operations and naturally draw the conclusion that interference in cases of confinement is of common occurrence, when we desire to impress upon the student's mind quite another picture.

With a false impression the young physician enters upon his practice, and one mistake, one unnecessary operation, leads often enough to a long train of misfortunes.

Unfortunately we see many examples of the foregoing. A primipara, for instance, has been in labor for twelve hours; the membranes have ruptured several hours previously; the head rests upon a rigid pelvic floor; which latter renders the second stage slow; the fetal heart is good; the mother in excellent condition, and as yet there is no danger of damage to the soft parts, as the head has only just reached the pelvic outlet; there is no indication for interference; a hurried low forceps operation is performed; a third degree laceration of the pelvic floor results; a hurried operation for repair is done, which, in the absence of proper assistance and ligatures, gives a bad result.

What follows? A subsequent operation must be performed by an expert, and in the meantime, and possibly after the second operation, should it, too, fail, the patient is doomed to rectal incontinence, and becomes an exile from society, and all because in the first instance, in the absence of a positive indication, a "harmless low forceps operation" was performed.

Still another clinical picture presents itself. A pelvic presentation occurs in multipara. One foot prolapses, and appears at the vulva. Mother and fetus are in perfect condition. There is positively no indication for interference. But the temptation is too great. In order to facilitate delivery the

attending physician seizes and makes traction upon the prolapsed leg. What results?

The head, as well as one or both arms, becomes extended. Delay in the delivery of the extended arms and head causes death of the fetus. The difficult extraction results in deep laceration of the cervix extending into the folds of the broad ligament. Severe hemorrhage follows.

A hasty tamponade of the uterus and vagina, not under strict aseptic principles, results subsequently in severe endo- and parametritis. What is the termination of such a case?

Death of the child, and the mother left with crippled pelvic organs perhaps for life, all from an attempt to facilitate the progress of labor by traction upon a prolapsed leg.

The student cannot have too often repeated to him the statement that obstetric operations of any kind should only be undertaken in the presence of a positive indication; that even what are apparently innocent operative procedures in obstetrics may terminate in tragedies.

The more impressed the student is with the full meaning of the term *primum non nocere* during his residence in the medical school and maternity, the more conservative and the better accoucheur will he become subsequently in his private practice, the better the fate of mother and child entrusted to him, and the better his reputation as an obstetrician.

50 East Thirty-fourth Street, New York.

